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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,173	08/05/2003	Ronald Javor	1000-0015	6341

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The Law Offices of John C. Scott, LLC
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P.O. Box 52050
Minneapolis, MN 55402

EXAMINER

HA, DAC V

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/634,173	Applicant(s) JAVOR ET AL.	
	Examiner Dac V. Ha	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 4, 13, 19, 27-31** are rejected under 35 U.S.C. 102(e) as being anticipated by Sugar et al. (US 6,728,517) (hereafter Sugar).

Regarding claim 1, Sugar discloses all the claimed subject matter as follows:

“a substrate” (Abstract; col. 1, lines 47-48; col. 2, line 4)

“a first microelectronic die mounted on said substrate, said first microelectronic die including a first receiver front end to process a signal received by a first antenna” (Fig. 2, element 140; col. 5, lines 42-44; 57-60);

“a second microelectronic die mounted on said substrate, said second microelectronic die including a second receiver front end to process a signal received by a second antenna” (Fig. 2, element 170; col. 5, lines 45-46, 60-64);

“a third microelectronic die mounted on said substrate, said third microelectronic die including analog baseband circuitry to process baseband output signals of said first and second receiver front ends” (col. 1, lines 60-65; col. 4, lines 1-27);

"a first interconnect coupled between an output of said first microelectronic die and a first input of said third microelectronic die" (col. 1, lines 60-65; col. 4, lines 1-27);

"a second interconnect coupled between an output of said second microelectronic die and a second input of said third microelectronic die (col. 1, lines 60-65; col. 4, lines 1-27).

Regarding claim 19, see claim 1 above; further Sugar discloses "a first patch antenna" in Fig. 1, element 12 and "a second patch antenna" in Fig. 1, element 14).

Regarding claim 13, Sugar discloses the followings:

"a first low noise amplifier (LNA) having a differential input to receive a signal from a first antenna" (Fig. 2, element 140; col. 5, lines 42-44; 57-60);

"a second LNA having a single-ended input to receive a signal from a second antenna" (Fig. 2, element 170; col. 5, lines 45-46, 60-64);

"a first mixer to perform a frequency conversion on an amplified output signal of said first LNA" (Fig. 2, element 144, col. 5, lines 62-63);

"a second mixer to perform a frequency conversion on an amplified output signal of said second LNA" (Fig. 2, element 174; col. 6, lines 24-36);

"a voltage controlled oscillator (VCO) to provide a local oscillator signal to said first and second mixers" (col. 7, lines 35-56).

Regarding claim 27, Sugar discloses the followings:

"amplifying a first signal received by a first antenna using a differential low noise amplifier (LNA) to generate an amplified first signal;" (Fig. 2, element 140; col. 5, lines 42-44; 57-60);

“amplifying a second signal received by a second antenna using a single ended LNA to generate an amplified second signal” (Fig. 2, element 170; col. 5, lines 45-46, 60-64);

“processing said amplified first signal and said amplified second signal to generate a single receiver output signal” (col. 1, lines 44-46; col. 2, lines 60-66).

Regarding claim 4, Sugar further discloses the claimed subject matter “at least one of said first interconnected and said second interconnected includes a microstrip transmission lines formed on said substrate” in col. 12, line 66 to col. 13, line 2.

Regarding claim 28, Sugar further discloses “processing includes frequency converting said amplified first signal and said amplified second signal” in Fig. 2, elements 144, 174.

Regarding claim 29, Sugar further discloses “processing includes filtering said amplified first signal and said amplified second signal after frequency converting” in Fig 2, elements 150, 180.

Regarding claim 30, Sugar further discloses “processing includes converting said amplified first signal and said amplified second signal to a digital format after filtering to generate a digitized first signal and a digitized second signal” in Fig. 2, elements ADC.

Regarding claim 31, Sugar further discloses “processing includes digitally processing said digitized first signal and said digitized second signal together to generate said single receiver output signal” in col. 1, lines 44-46; col. 2, lines 60-66.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 2, 3, 5-12, 14-18, 20-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar.

Regarding claims 2, 3, 5-10, 14, these claimed subject matter are rather design specific and preference, thus would have been easily realized by one skilled in the art (i.e. in the art of electronic/semiconductor).

Regarding claim 11, Sugar further discloses these claimed subject matter as indicated in claim 13 above.

Regarding claim 12, the claimed subject matter "a fourth microelectronic die mounted on said substrate, said fourth microelectronic die including a third receiver front end to process a signal received by a third antenna; and a fourth interconnect coupled between an output of said fourth microelectronic die and a third input of said third microelectronic die" would have been obvious to one skilled in the art since the system disclosed in Sugar is equally applicable to general system with N antennas.

Regarding claim 15, Sugar further discloses the claimed subject matter"

"a first filter to filter a frequency converted output signal of said first mixer, said first filter having an output for connection to a first analog to digital (A/D) converter" (Fig. 2, element 140);

"a second filter to filter a frequency converted output signal of said second mixer, said second filter having an output for connection to a second A/D converter" (Fig. 2, element 170).

Regarding claims 16, 17, these claimed subject matter are rather design specific and preference, thus would have been easily realized by one skilled in the art.

Regarding claim 18, see claim 12.

Regarding claims 20-26, these claimed subject matter are rather design specific and preference, thus would have been easily realized by one skilled in the art.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

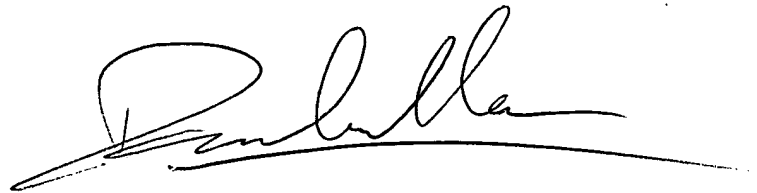
Lin et al. (US 6,876,836) discloses Layout Of Wireless Communication Circuit On A Printed Circuit Board.

Meehan et al. (US 2002/0150185) discloses Diversity Combiner For Reception Of Digital Television Signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a long horizontal flourish extending to the right.

Dac V. Ha
Primary Examiner
Art Unit 2611